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1 **ON THE MODELING OF GAS-PHASE MASS-TRANSFER IN METAL SHEET STRUCTURED**
2 **PACKINGS**

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9 **Key words:** absorption, mass-transfer, structured packing, Mellapak

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11 **Abstract:**

12 This paper refers on gas mass-transfer characteristics of several metal sheet Mellapak structured
13 packings (M250Y, M350Y, M452Y, M500Y) under absorption conditions. These characteristics have
14 been measured using standard absorption systems of SO₂ chemisorption into the NaOH aqueous
15 solution ($k_G a$) and CO₂ chemisorption into the NaOH aqueous solution (effective area a).
16 Measurements were performed with four elements of the packing with diameter of 0.29 m and
17 total height of 0.84 m. Gas-phase mass-transfer coefficients for all studied packings have been
18 correlated by the dimensionless equation $Sh_G = 0.409 \cdot Re_G^{0.622} \cdot Re_L^{0.0592}$. The experimental values of
19 k_G are in the most cases significantly under-predicted by fundamental mass-transfer models,
20 wetted-wall column correlations and by the model packages developed for structured packing. The
21 exponent 0.622 of gas Reynolds criteria is lower than expected by the models starting from the
22 imagination of the flow through the channel and corresponding experiments with wetted-wall
23 columns. The revealed value of the exponent agrees better with those found for flow around
24 submerged objects like spheres or through the bed consisting of random packing, suggesting that
25 the wetted wall column is not a suitable experimental simplification for the study of structured
26 packings.

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